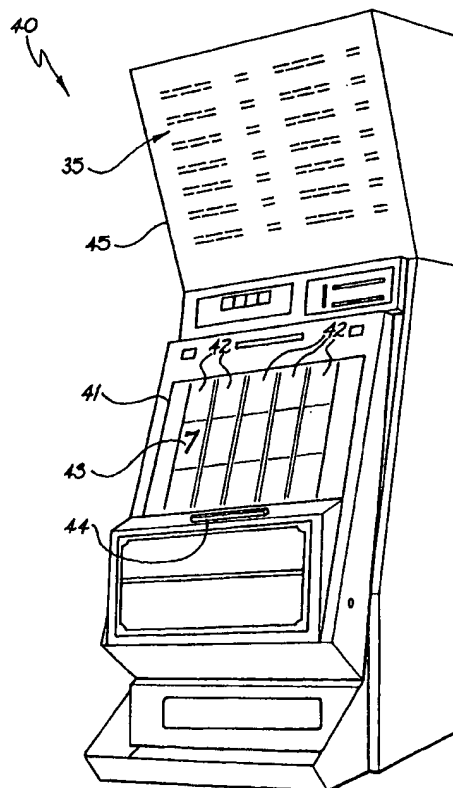




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(21) International Application Number: PCT/AU99/00440 (22) International Filing Date: 4 June 1999 (04.06.99) (30) Priority Data: PP 3939 5 June 1998 (05.06.98) AU (71) Applicant (for all designated States except US): ARISTO-CRAT LEISURE INDUSTRIES PTY. LTD. [AU/AU]; 71 Longueville Road, Lane Cove, NSW 2066 (AU). (72) Inventor; and (75) Inventor/Applicant (for US only): TIMPERLEY, David [AU/AU]; 55/244 Alison Road, Randwick, NSW 2031 (AU). (74) Agent: F.B. RICE & CO.; 605 Darling Street, Balmain, NSW 2041 (AU).		(81) Designated States: AU, CA, JP, NZ, US, ZA, European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). Published <i>With international search report.</i>
(54) Title: GAMING APPARATUS WITH ANIMATED PAYLINES (57) Abstract <p>A gaming machine (40) having display means (41) and game control means (44) is disclosed. The game control means (44) are arranged to control images (42) displayed on the display means (41), and to play a game wherein a plurality of symbols (43) are randomly selected and displayed on the display means (41). If a winning combination results, the machine (40) pays a prize. The game is of a style that creates a matrix of symbols (43) and pays prizes for the occurrence of predetermined combinations in the matrix, winning combinations being highlighted to indicate the combination to the player. The gaming machine (40) is characterised in that each winning combination is indicated to the player by creating an image of an animated line (50) which indicates each symbol (43) of the respective winning combination.</p>		



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Gaming apparatus with animated paylines

Technical Field

The present invention relates to gaming machines of the type known as slot machines arranged to play a large variety of card related and other gambling games and in particular the invention provides an improvement to a game played on such a machine.

Players who regularly play gaming machines quickly tire of particular games and therefore it is necessary for manufacturers of these machines to come up with innovative game features that add interest to the games provided on such machines in order to keep the players amused and therefore willing to continue playing the game.

Description of the Prior Art

Gaming or poker machines have been well known for many years and have gained considerable popularity in some jurisdictions, with quite substantial amounts of money wagered on these machines. There is a growing tendency for Governments to legalise the use of gaming machines by licensing operators, with resulting revenue gains through licence fees and taxation of monies invested. The licensed operation of gaming machines is the subject of legislation and regulation. This regulation most always dictates a minimum percentage payout for a gaming machine. For example, in some jurisdictions, a minimum of 85% of monies invested must be returned as winnings, and manufacturers of gaming machines therefore must design their machines around these regulatory controls.

With the growth that has occurred in the gaming machine market there is intense competition between manufacturers to supply the various existing and new venues. When selecting a supplier of gaming machines, the operator of a venue will often pay close attention to the popularity of various games with their patrons. Therefore, gaming machine manufacturers are keen to devise games which are popular with players, as a mechanism for improving sales.

Many various strategies have been tried in the past to make games more enticing to players, including the commonly known double-up feature, whereby if a player wins a particular game, they can then risk the winnings of that game in a double-or-nothing mode in which they gamble on a

subsequent, and often different, game such as whether a red or black card will be the next card drawn.

Other techniques adopted in the past have been to provide complexity in the numbering and combinations of indicia which would result in a win, thereby hoping to convince the player that there is a greater chance of winning and to keep their interest in a particular game.

Summary of the Invention

The present invention provides a gaming console having display means, and game control means arranged to control images displayed on the display means, the game control means being arranged to play a game wherein a plurality of symbols are randomly selected and displayed on the display means and, if a winning combination results, the machine pays a prize, the game being of a style that creates a matrix of symbols and pays prizes for the occurrence of predetermined combinations in the matrix, winning combinations being highlighted to indicate the combination to the player, the console being characterised in that each winning combination is indicated to the player by creating an image of an animated line which indicates each symbol of the respective winning combination.

The animated line preferably indicates the winning combination by being created such that it passes through each symbol of the winning combination.

The animated line may take various forms depending on the theme of the game and for example could be:

- a lightning flash in a game with a horror theme;
- a heartbeat as represented on the display means of an electrocardiograph (ECG) machine in a game with a love theme;
- a laser beam ricocheting across the display in a game with a space theme;
- a trail of footsteps in a game with an outdoors theme; or
- a set of vehicle tyre tracks or a single tyre track in a game with a road theme.

The display means is preferably a video graphics display mounted for convenient viewing by a user of the gaming machine.

The way in which the animated line is created on the display means may vary. For example, the line may initially appear at one side of the display means and then grow at a steady rate across to the other side of the display means, passing through each of the symbols of the winning combination. The line may progress across the display means at a fluctuating rate. The line may form from various points on the display means, and gradually grow out from each of these points towards one or both of the adjacent points, until the line has been formed through the symbols of the winning combination. The line may simply "fade in". In the case of the line taking the appearance of a trail of footsteps, the line may grow as each footstep appears one at a time.

In embodiments of the invention the animated line may be animated even after it has been formed.

In some embodiments the line, rather than spreading across an entire width of the display means, may spread over a portion of the display means that is sufficient to clearly portray the winning combination to the user. For example, in the case of the line taking the form of a trail of footsteps, there may be gaps in the line between each footstep, however the trail as a whole will still clearly display the winning combination to the user.

Preferably, either while it grows or in its complete form, the line does not prevent the user from distinguishing the type of each symbol that it passes through. The line may be narrow enough that the small part of each symbol that is obscured from the user does not prevent the user from easily determining what the symbol is.

In games in which more than one winning combination occurs, more than one animated line may display the winning combinations to the user. The animated lines may form one after another, by any of the methods mentioned above. Alternatively, the lines may form simultaneously across the display means, and again each line may form by any of the methods described above.

Brief Description of the Drawings

Embodiments of the invention will now be described by way of example with reference to the accompanying drawings in which:

Figure 1 illustrates a gaming machine with a video simulation of a rotating reel display incorporating a first embodiment of the invention;

Figure 2 is a schematic diagram of a gaming machine control circuit;

Figure 3 shows an embodiment in which an animated payline is formed along a winning combination by growing out from various points across a screen; and

5 Figure 4 shows an embodiment in which an animated payline is formed along a winning combination by growing from one side of the screen to the other.

Detailed Description of the Preferred Embodiments

10 In the following detailed description the methodology of the embodiments will be described, and it is to be understood that it is within the capabilities of the non-inventive worker in the art to introduce the methodology on any standard microprocessor-based gaming machine by means of appropriate programming.

15 Referring to Figure 1 of the drawings, the first embodiment of the invention is illustrated in which a slot machine 40, of the type having a video display screen 41 which displays a plurality of rotatable reels 42 carrying symbols 43, is arranged to pay a prize on the occurrence of a predetermined symbol or combination of symbols.

20 In the slot machine 40 illustrated in Figure 1, the game is initiated by a push button 44, however, it will be recognised by persons skilled in the art that this operating mechanism might be replaced by a pull handle or other type of actuator in other embodiments of the invention. The top box 45 on top of the slot machine 40 carries an artwork panel 35 which displays the
25 various winning combinations for which a prize is paid on this machine.

 The program which implements the game and game feature is run on a standard gaming machine control processor 100 as illustrated schematically in Figure 2. This processor forms part of a controller 110 which drives the video display screen 141 and receives input signals from sensors 144. The
30 sensors 144 may be touch sensors, a pull handle or another type of actuator in other embodiments of the invention. The controller 110 also receives input pulses from a mechanism 120 indicating the user has provided sufficient credit to begin playing. The mechanism 120 may be a coin input chute, a credit card reader, or other type of validation device. The controller
35 120 further drives a payout mechanism 130 which for example may be a coin output.

The game played on the machine shown in Figures 1 and 2 is a relatively standard game which includes a 3 by 5 symbol display and allows multiple pay lines. The game also includes a special feature embodying the invention, the special feature being invoked when a winning combination
5 occurs. The special feature embodying the invention is an animated line indicating a winning combination and a first embodiment of the invention is portrayed in Figures 3a and 3b.

Figures 3a and 3b show an embodiment in which the animated line
10 50 takes the form of a lightning bolt. Such an appearance for the animated line 50 may be appropriate for games with a somewhat ghoulish theme. In this embodiment, the line 50 has appeared at various points 51 across the screen 41. The animated line 50 then "grows" out from each of these points 51 towards the adjacent point on the right. In the embodiment shown in Figure 3a, the line has started to grow from the leftmost point 51 prior to the other
15 points, and then subsequently begins to grow from each sequential point across the screen 41. This creates an interesting and attractive feature for the user.

The points 51 may also be stylised to match the theme of the game. For example, in this case where the animated line takes the form of a
20 lightning bolt, the points 51 may be represented as the metallic tip of a lightning rod. Each point 51 may initially be of a copper colour, and then subsequently become a bright metallic silver colour once the animated line 50 starts to "grow" from it.

Furthermore, in the embodiment shown in Figure 3a and Figure 3b, the
25 animated line may continue animation even after it has formed across the entire width of the screen. For example, the "lightning bolt" may continue to "spark" or "glow" or otherwise remain animated during some or all of the time that the line 50 remains on the screen 41.

Preferably the line 50, either while it grows or in its complete form,
30 does not conceal from the user any of the symbols 43 that it passes through for any substantial period. In the current embodiment, the line 50 is narrow enough that the small part of each symbol 43 that is obscured from the user does not prevent the user from easily determining the nature of each symbol 43. Alternatively, the lightning flash may move about relative to an average
35 path such that different portions of the underlying symbols are briefly covered at different points in time.

Figure 4a shows an embodiment in which the animated line 60 is in the form of a trail of footsteps 61, and initially appears at the left hand side of the screen 41. Such an appearance for the animated line 60 may be appropriate for games with outdoor themes. The animated line has started to form at a steady rate across the screen, and has passed through two of the symbols of the winning combination. Figure 4b shows the same animated line 60 at a later moment in time, its formation having progressed further across the screen 41, now passing through four of the symbols of the winning combination.

In Figure 4c the entire winning combination is indicated to the player by the completed image 60 of the animated line which has grown across the screen 41 passing only through each symbol of the respective winning combination. In this case, the animated line 60 is in the form of a trail of footsteps 61, and its formation is complete.

Again, once the line 50 has completed formation across the width of the screen 41, animation of the line may continue to provide an attractive feature for the user. For example, in the current embodiment the footsteps may "dance".

Although the invention has been described with reference to particular examples of the invention, it should be appreciated that it may be exemplified in other forms. For instance, the feature embodying the invention may be implemented on many types of gaming machine, and incorporated into many different game types. For example, an electronic card game may incorporate the invention.

The animated line may take many different forms depending on the theme of the game, and the type of game played. The way in which the line grows across the screen may also vary. For example, the line may grow at a steady rate across the screen. The line may progress across the screen at a fluctuating rate. The line may begin at various points on the screen, and gradually grow out from each of these points towards one or both of the adjacent points, until the line has been formed across the screen. The line may simply "fade in". The line, once formed, may not spread across the entire width of the screen, but over only a portion of the screen that is sufficient to clearly portray the winning combination to the user.

In cases where there is more than one winning combination, more than one animated line may display the winning combinations to the user. The animated lines may form one after another, by any of the methods mentioned above. Alternatively, the lines may form simultaneously across the screen, and again each line may form by any of the methods described above.

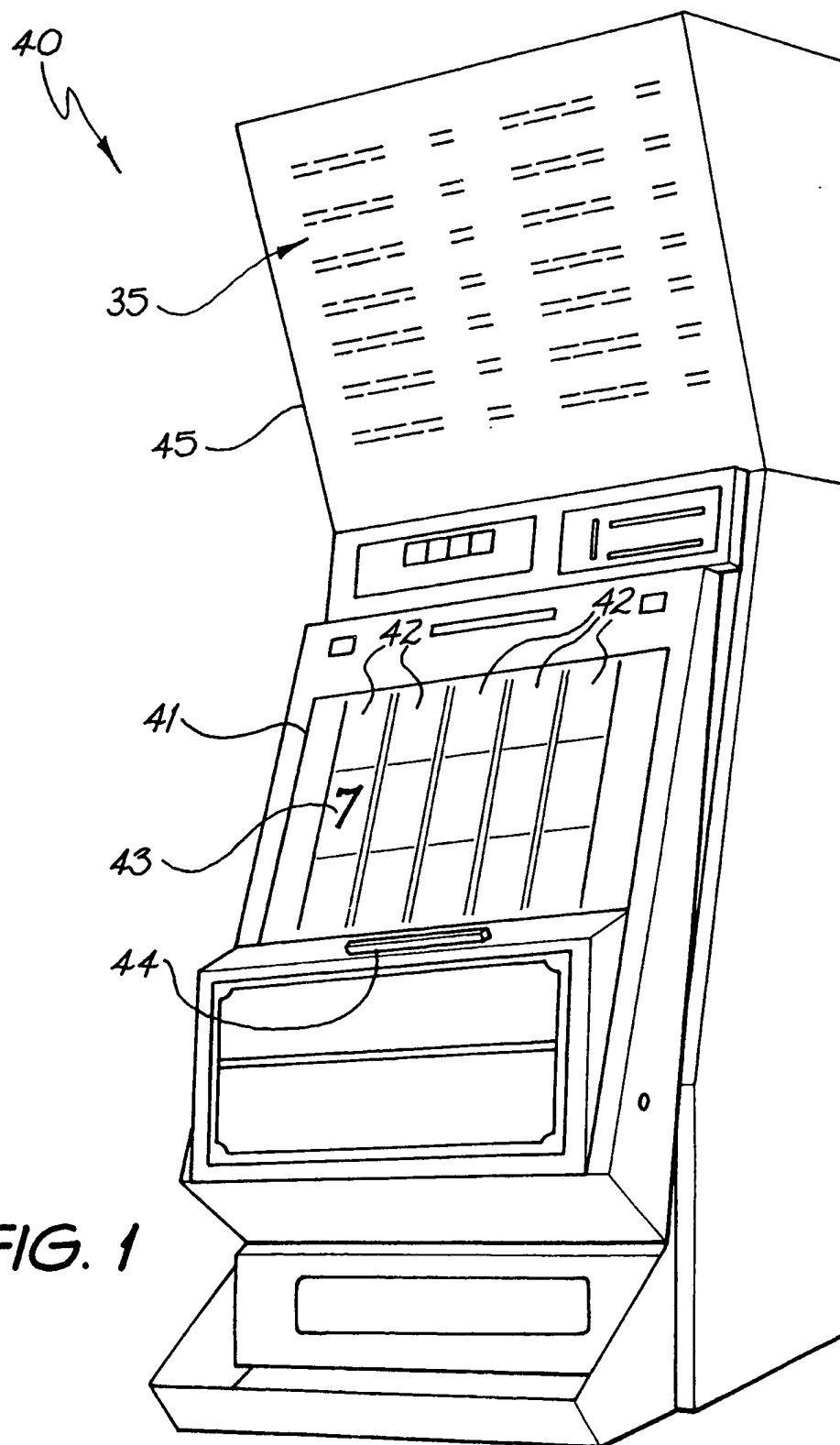
It will be appreciated by persons skilled in the art that numerous variations and/or modifications may be made to the invention as shown in the specific embodiments without departing from the spirit or scope of the invention as broadly described. The present embodiments are, therefore, to be considered in all respects as illustrative and not restrictive.

CLAIMS:

1. A gaming machine having display means, and game control means arranged to control images displayed on the display means, the game control means being arranged to play a game wherein a plurality of symbols are
5 randomly selected and displayed on the display means and, if a winning combination results, the machine pays a prize, the game being of a style that creates a matrix of symbols and pays prizes for the occurrence of predetermined combinations in the matrix, winning combinations being highlighted to indicate the combination to the player, the gaming machine
10 being characterised in that each winning combination is indicated to the player by creating an image of an animated line which indicates each symbol of the respective winning combination.
2. The gaming machine according to claim 1, wherein the animated line is created such that the animated line indicates each symbol of the winning
15 combination by passing through each symbol of the winning combination.
3. The gaming machine according to any preceding claim wherein the display means is a video graphics display.
4. The gaming machine according to any one of claims 1 to 3, wherein the animated line takes a form which is consistent with a theme of the game.
- 20 5. The gaming machine according to any one of claims 1 to 4, wherein the animated line takes the form of a lightning flash.
6. The gaming machine according to any one of claims 1 to 4, wherein the animated line takes the form of a heartbeat as represented on the display of an electrocardiograph (ECG) machine.
- 25 7. The gaming machine according to any one of claims 1 to 4, wherein the animated line takes the form of a laser beam ricocheting across the display means.
8. The gaming machine according to any one of claims 1 to 4, wherein the animated line takes the form of a trail of footsteps.
- 30 9. The gaming machine according to any one of claims 1 to 4, wherein the animated line takes the form of one or more vehicle tyre tracks.
10. The gaming machine according to any one of claims 1 to 9, wherein the animated line initially appears at one side of the display means and then grows across to the other side of the display means, passing through each of
35 the symbols of the winning combination.

11. The gaming machine of any one of claims 1 to 9, wherein the animated line forms from various points on the display means, and grows out from each point towards one or both of the adjacent points.
- 5 12. The gaming machine of any one of claims 1 to 9, wherein the animated line forms by fading in.
13. The gaming machine according to any of the preceding claims wherein the animated line forms at a steady rate.
14. The gaming machine according to any one of claims 1 to 12, wherein
10 the animated line forms at a fluctuating rate.
15. The gaming machine according to any one of the preceding claims, wherein the animated line only forms over a portion of the screen that is sufficient to clearly portray the winning combination to the user.
16. The gaming machine according to any one of the preceding claims,
15 wherein the animated line does not prevent the user from distinguishing each symbol of the winning combination.
17. The gaming machine according to claim 16, wherein the animated line is sufficiently narrow that the small part of each symbol that is obscured by the animated line does not prevent the user from easily determining what the
20 symbol is.
18. The gaming machine according to any preceding claim, wherein the animated line is animated after being formed.
19. The gaming machine according to any preceding claim, wherein a plurality of animated lines are created to indicate a plurality of winning
25 combinations.

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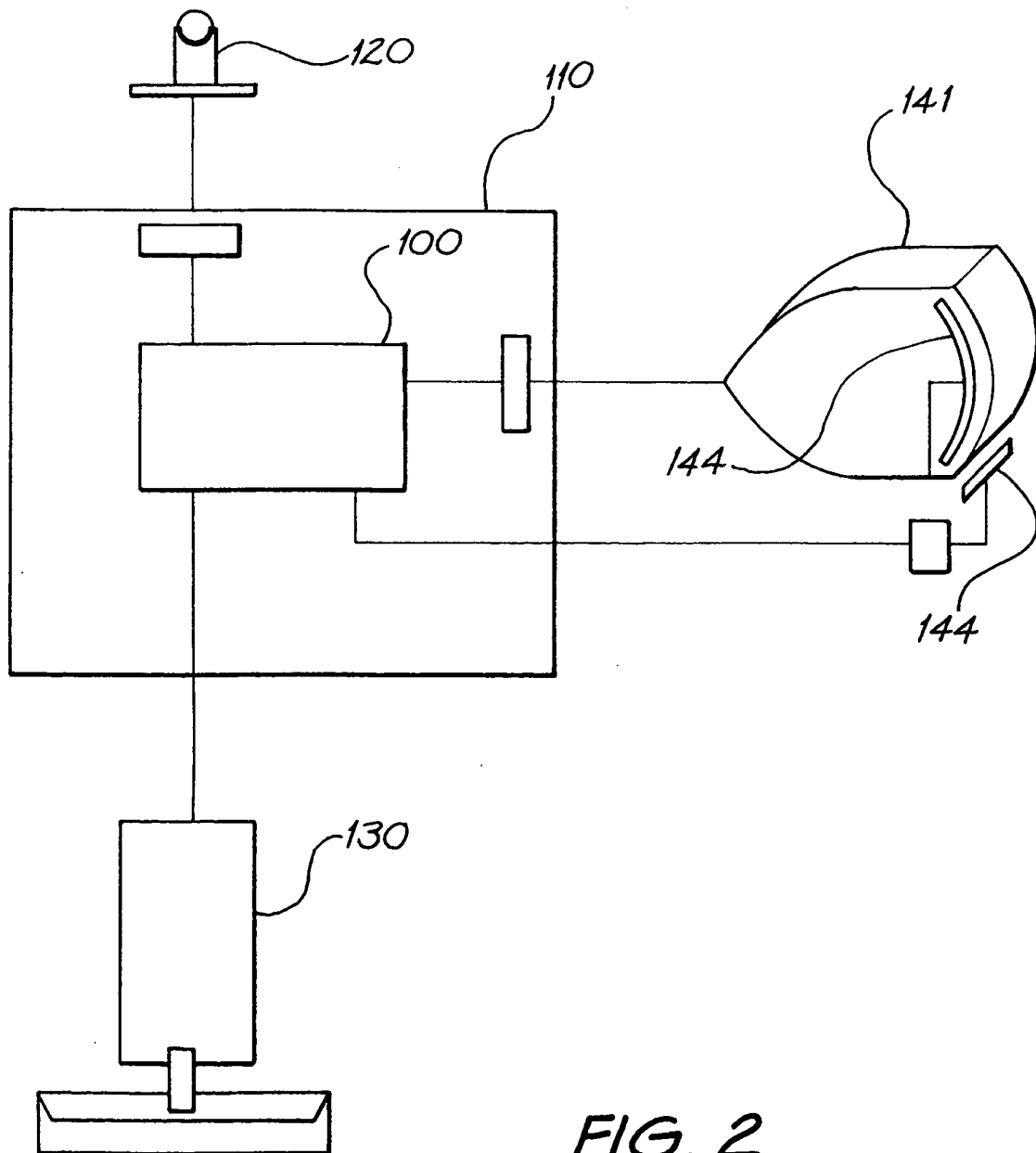


FIG. 2

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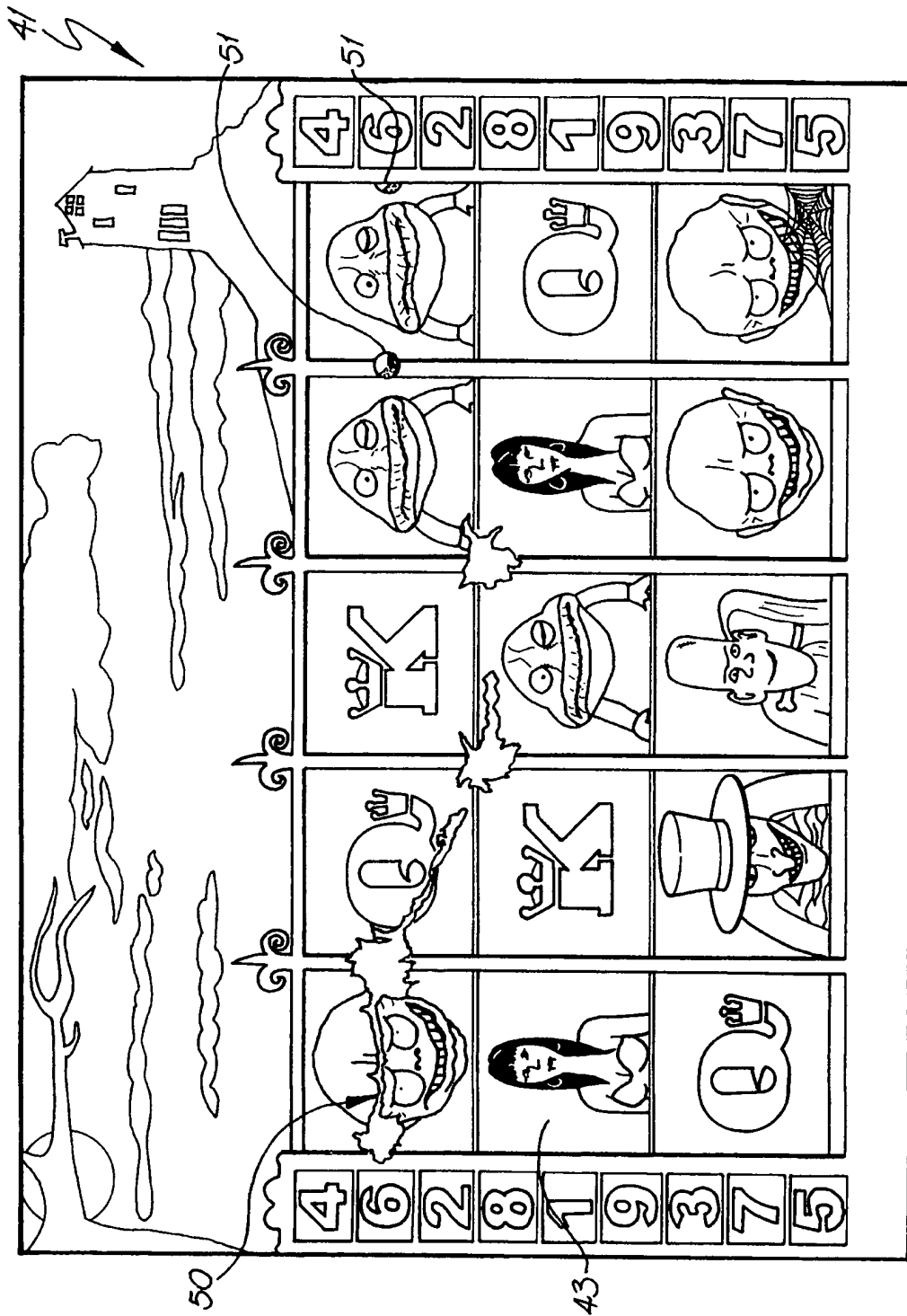


FIG. 3a

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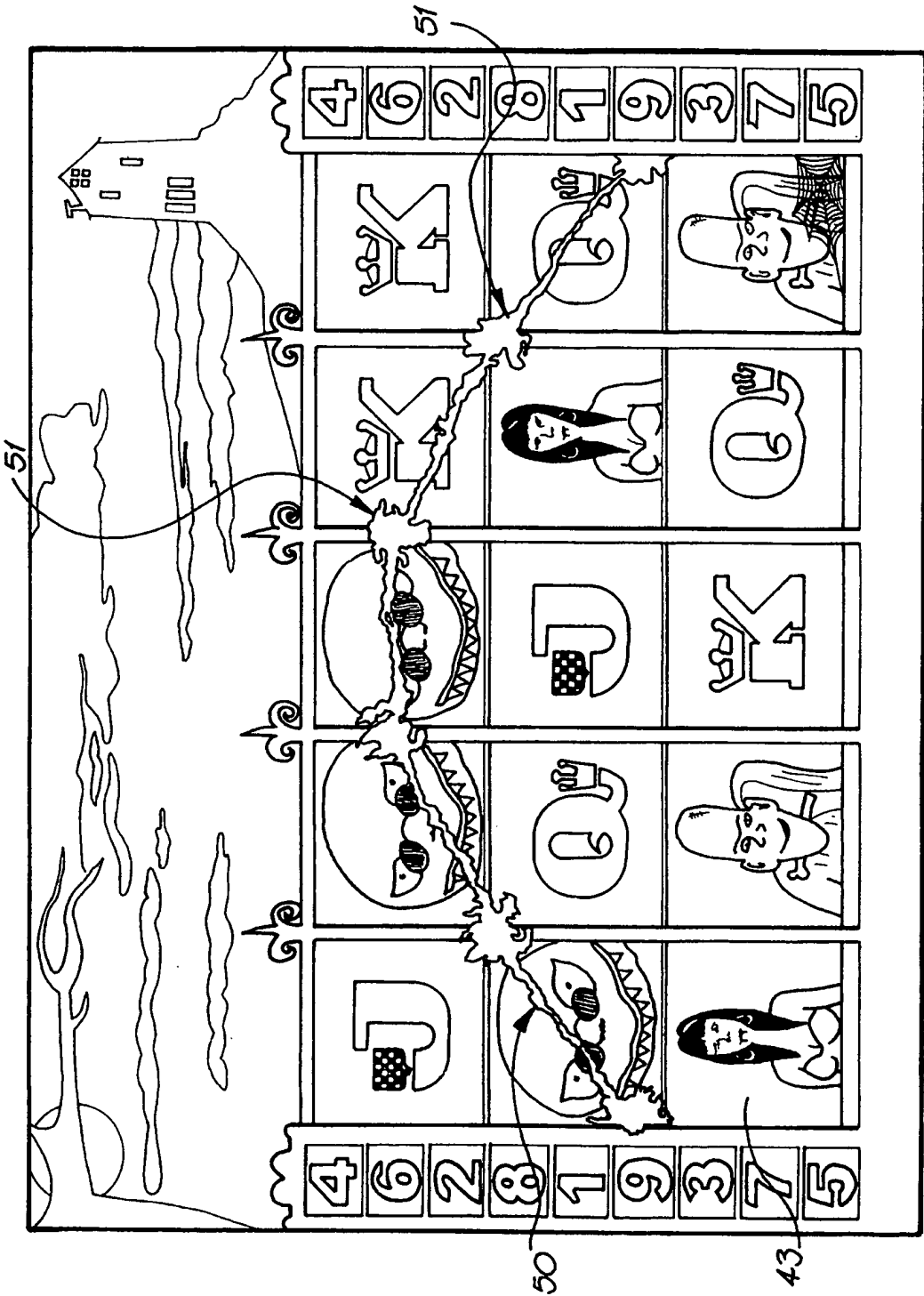


FIG. 3b

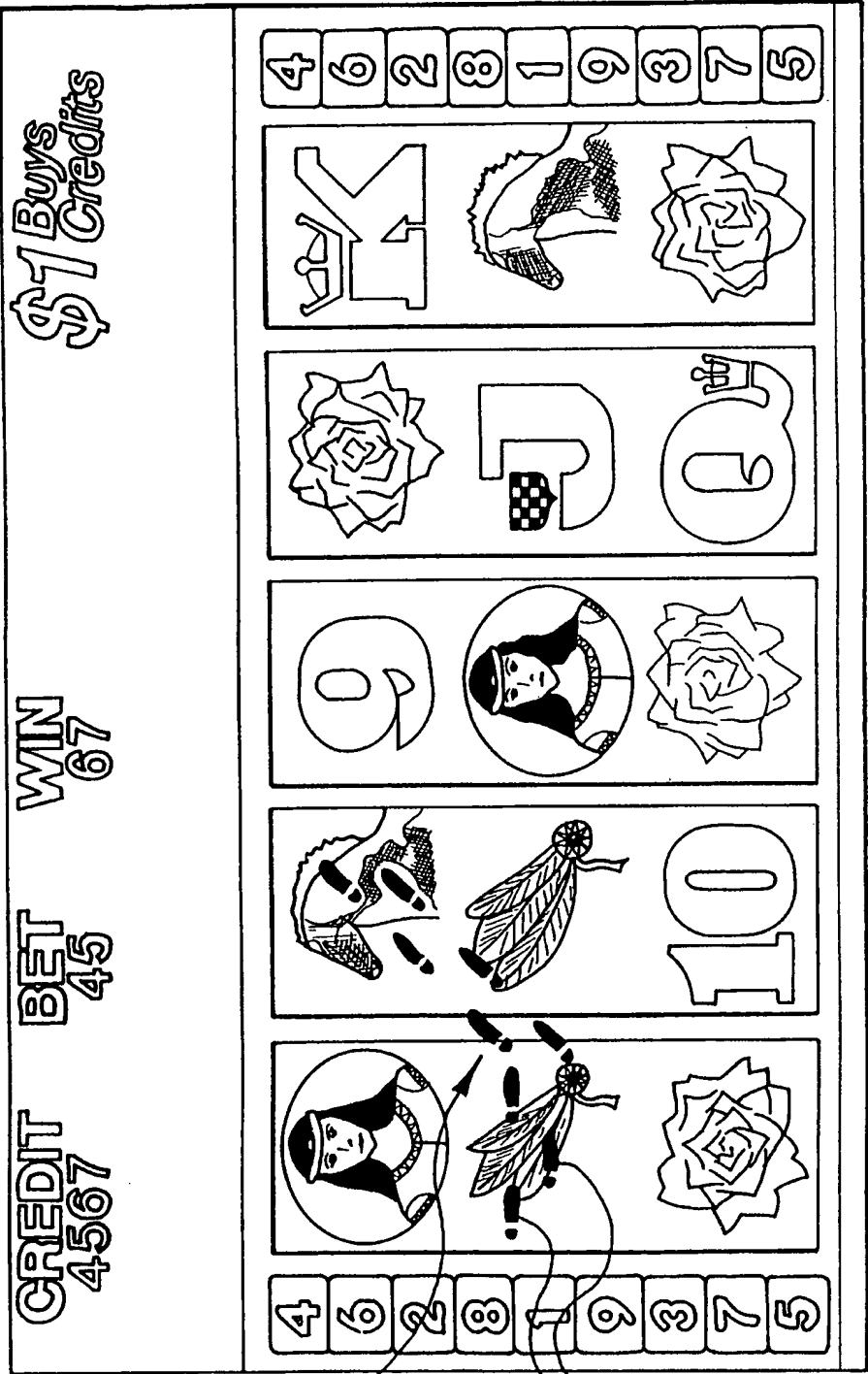


FIG. 4a

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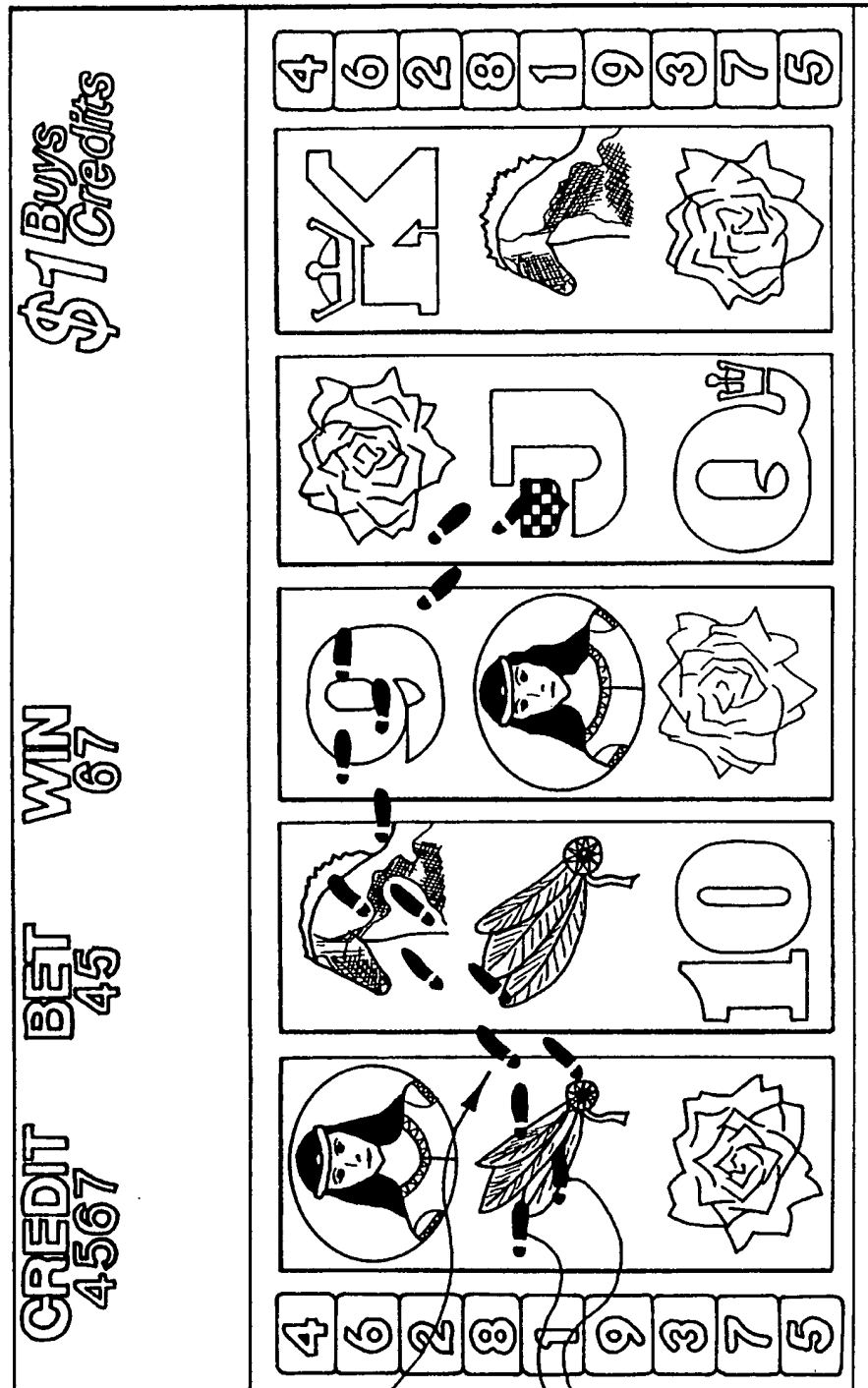


FIG. 4b

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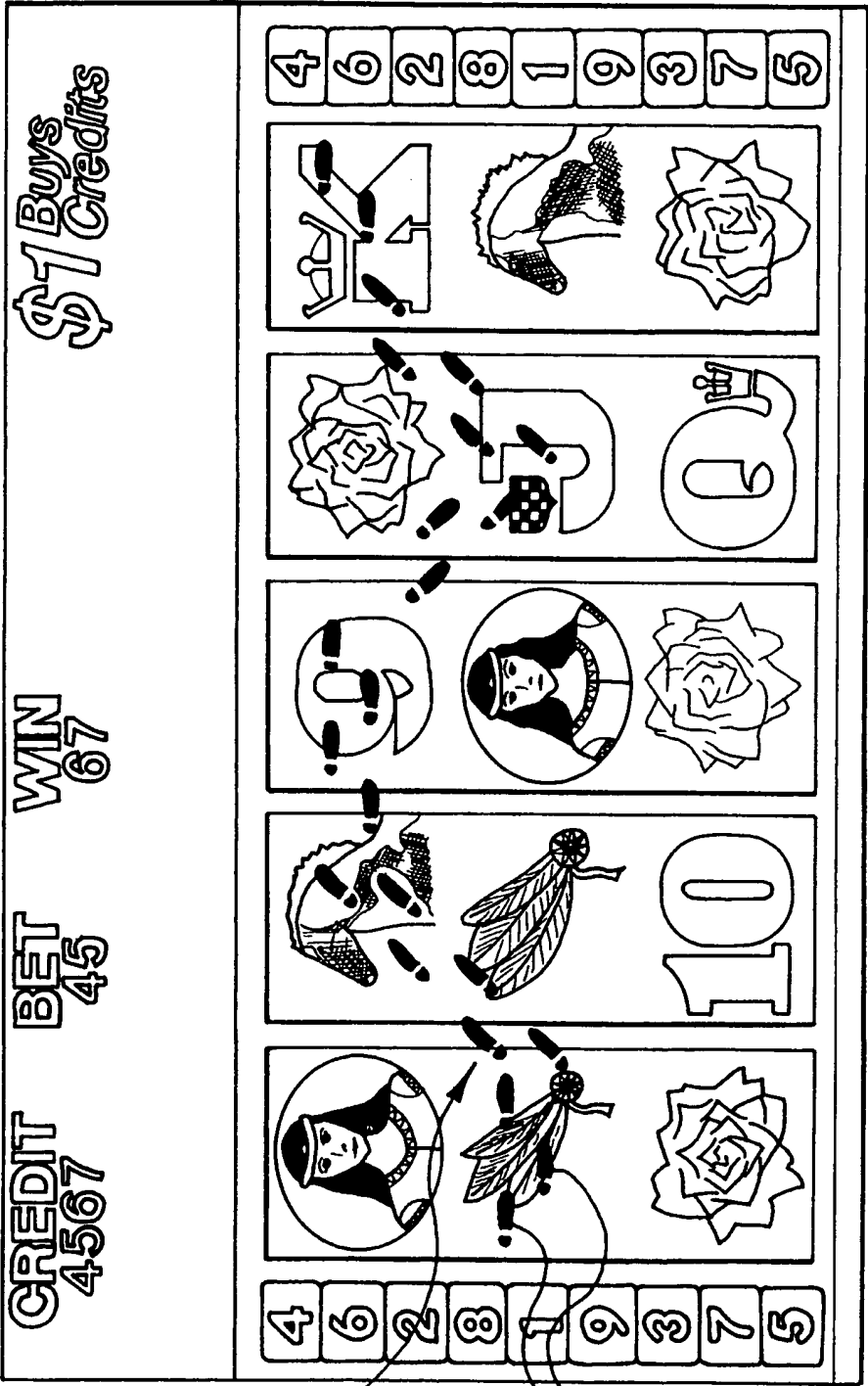


FIG. 4C

INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU 99/00440

A. CLASSIFICATION OF SUBJECT MATTER																						
Int Cl ⁶ : G07F 17/34																						
According to International Patent Classification (IPC) or to both national classification and IPC																						
B. FIELDS SEARCHED																						
Minimum documentation searched (classification system followed by classification symbols) IPC G07F 17/34																						
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched																						
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) WPAT, JAPIO: G07F 17/34 AND (ANIMAT: OR (SYMBOL# AND (LINE# OR PATH# OR MOV: OR FLASH:)) OR HIGHLIGHT:)																						
C. DOCUMENTS CONSIDERED TO BE RELEVANT																						
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.																				
X	EP 223577 A (KABUSHIKI KAISHA UNIVERSAL) 27 May 1987 ABSTRACT, PAGE 10 line 12-27	1-3, 15-19																				
A	AU 30544/95 A (BALLY GAMING INTERNATIONAL, INC) 29 August 1996 ABSTRACT																					
<input type="checkbox"/> Further documents are listed in the continuation of Box C <input checked="" type="checkbox"/> See patent family annex																						
<p>* Special categories of cited documents:</p> <table border="0"> <tr> <td>"A"</td> <td>Document defining the general state of the art which is not considered to be of particular relevance</td> <td>"T"</td> <td>later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</td> </tr> <tr> <td>"E"</td> <td>Earlier application or patent but published on or after the international filing date</td> <td>"X"</td> <td>document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</td> </tr> <tr> <td>"L"</td> <td>Document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</td> <td>"Y"</td> <td>document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</td> </tr> <tr> <td>"O"</td> <td>Document referring to an oral disclosure, use, exhibition or other means</td> <td>"&"</td> <td>document member of the same patent family</td> </tr> <tr> <td>"P"</td> <td>Document published prior to the international filing date but later than the priority date claimed</td> <td></td> <td></td> </tr> </table>			"A"	Document defining the general state of the art which is not considered to be of particular relevance	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention	"E"	Earlier application or patent but published on or after the international filing date	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone	"L"	Document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art	"O"	Document referring to an oral disclosure, use, exhibition or other means	"&"	document member of the same patent family	"P"	Document published prior to the international filing date but later than the priority date claimed		
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Date of the actual completion of the international search 7 July 1999		Date of mailing of the international search report 14 JUL 1999																				
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INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU 99/00440

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Patent Document Cited in Search Report		Patent Family Member	
EP	223577	JP	62034388
AU	30544/95	US	5611535
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